



**Panasonic®**

Before operating this set, please read these instructions completely.

## FEATURES

### • Over all

- This is a compact mixer incorporating 4 monaural input circuits, 6 stereo input circuits, and 2 stereo phono input circuits.
- The I/O connector panel of this unit can be moved to the rear, top, or bottom surface.
- The rack mount angle fittings allow excellent flexibility for method of installation. This unit can be mounted on a standard 19" EIA rack or a wall surface. It can also be flush-mounted in the wall or on a table top.

### • Input circuits

- The monaural input circuits each have a dual-function level control which simultaneously adjusts input sensitivity according to the output level of the signal source connected, and the output level of the channel. This allows connection of devices within a very wide range of output levels, such as microphones, electric guitar, CD player, cassette deck, and open reel tape deck.
- Each monaural input circuit is provided with 2-band equalizer of MID HIGH (3.5kHz) and MID LOW (450Hz).
- Each monaural input circuit is provided with an effect send control which enables control of signal transmission to the effect device.
- The monaural input circuit has a built-in compressor circuit which prevents distortion due to excessive input levels.
- Two stereo input sections, each consisting of 3 stereo line inputs and an RIAA phono input, allows

connection of up to 6 stereo line level sources and 2 turntables.

- Each stereo input fader is a 60mm throw fader incorporating a microswitch. This allows fader operation to remotely control the start/stop function of a turntable, cartmachine, etc.
- An external monitor input (INPUT) is available. It is useful for foldback speaker monitoring, etc.
- Stereo input muting circuits are incorporated. If desired, the mono input signal can be given priority by automatically attenuating the stereo input signal when a signal appears at the mono input. This is useful for paging, voice-overs, etc.

### • Output circuits

- The main output circuit is provided with a 2-band shelving equalizer of High (12kHz) and Low (80Hz).  
Two monaural output circuits are available. One circuit is used to output a MAIN OUT pre-fader level signal, while the other circuit sends a MAIN OUT post-fader level signal.
- Two monitor output circuits are available; a stereo headphone output circuit and an external monitoring stereo output circuit, which can be used for control room monitoring.  
Using the selector switch, the signal to be monitored can be chosen from five signals; Stereo in 1, Stereo in 2, Stereo in L-1, R-2, Main out, and MONITOR IN.
- Two stereo output circuits are available for recording.
- The 3-point LED indicator indicates levels of signal (-20dB), peak (+14dB), and clip (+20dB).

# RAMSA

AUDIO MIXER

## WR-M10A

## Operating Instructions

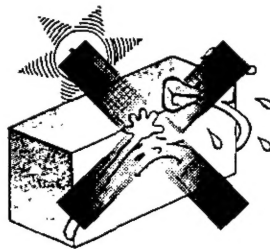
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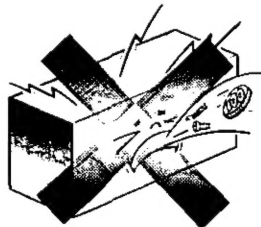
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## PRECAUTIONS

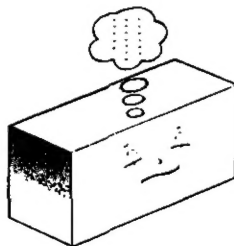
1. Place the mixer on a flat surface. Do not place it in direct sunlight or near any source of heat. Avoid moisture, dust, and excessive vibration as these conditions may cause malfunctions.
- In the case of installation on the wall, never place any weight on top of the unit.



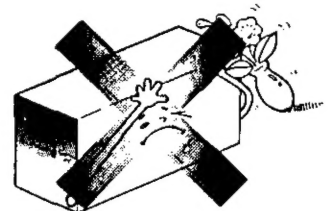
2. Foreign objects such as metal can cause electric shock or damage if dropped inside. Be sure to close cover when set is not in use. If any metal objects are dropped inside, unplug the unit at once and consult your dealer or an Authorized Service Center.



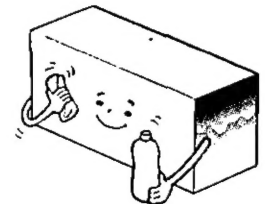
3. In case of any malfunction such as intermittent or complete loss of sound, turn off the power at once and consult your dealer or an Authorized Service Center.



4. This unit is not water-proof. If the mixer should get wet, unplug the AC cord at once and consult your dealer or an Authorized Service Center.



5. Clean the mixer with a dry cloth. For severe stains use a damp, soapy cloth, then wipe with a dry cloth. Do not use benzine, solvents, insect sprays, or any other chemicals on or near the mixer as they can damage the case.



6. Do not attempt to disassemble the unit. To prevent electric shock, do not remove the screws or cover. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.

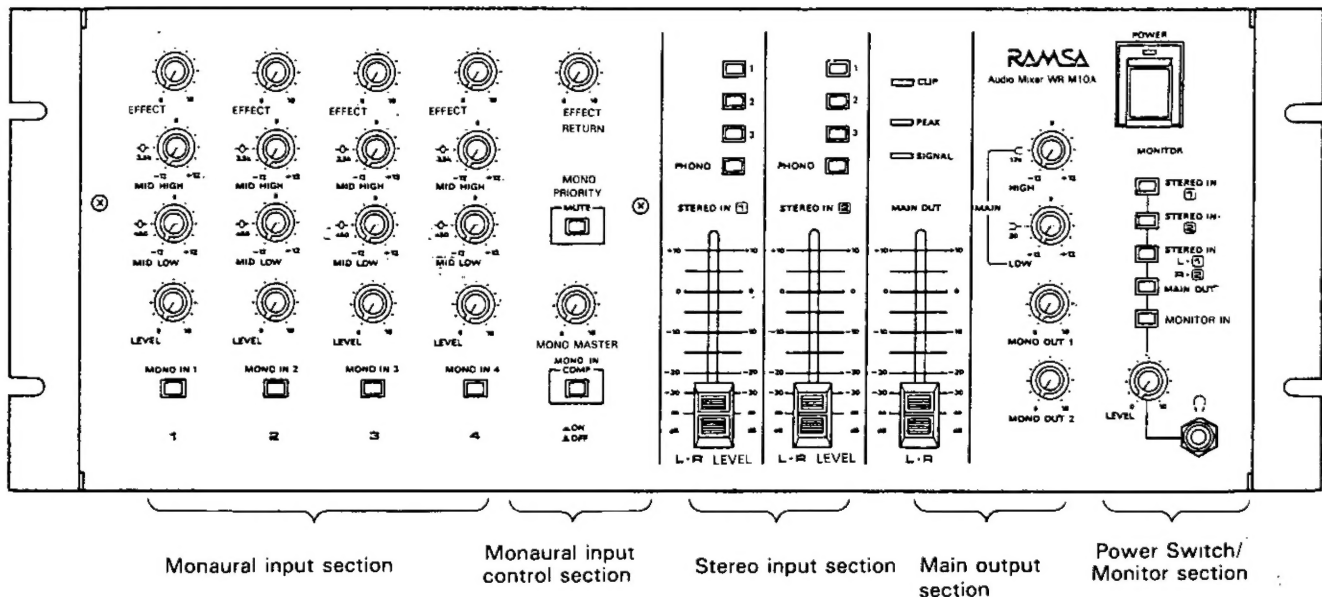
## PRECAUTION FOR OPERATION

- The compressor level control (COMP.) and music mute level control (MUTE) are located on the bottom section of this unit.

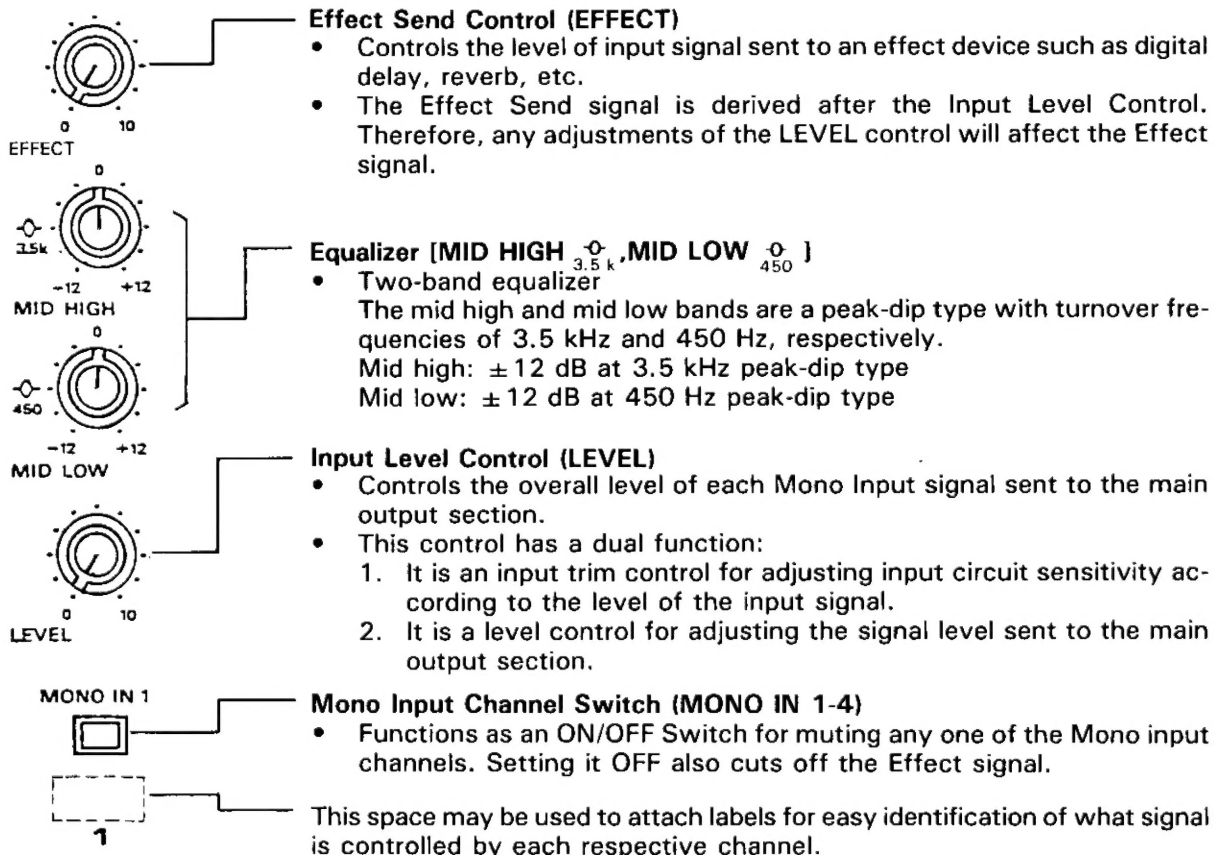
However, these controls should not be touched except for adjustments during installation or for re-adjustments.

# MAJOR OPERATING FEATURES

## • Front panel



## MONAURAL INPUT SECTION



## MONAURAL INPUT CONTROL SECTION



0  
EFFECT  
RETURN  
MONO  
PRIORITY

### Effect Return Control (EFFECT RETURN)

Adjusts the level of a signal returned from the output of an effect device such as digital delay, reverb, etc. The signal is then sent to the main output section.



### Mono Priority Switch (MONO PRIORITY)

When this switch is turned on the Mono Priority Circuit is activated. In this mode, any signal sent to the main output section via the stereo inputs becomes attenuated when a signal appears at one or more of the Mono input channels. The mono signal will then have a higher level at the main output than the stereo signal. When the mono signal disappears, the stereo signal will return to its former level within 2-3 seconds. This is useful for paging, or when a DJ talks over the music being played. If the switch is turned off, the Mono and Stereo signals are mixed together.

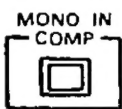
**NOTE:** The muting level is adjustable. (See page 19.)



MONO MASTER

### Input Mono Master Control (MONO MASTER)

Adjusts the overall level of the combined signals of Mono Inputs 1-4 to be sent to the main output section.



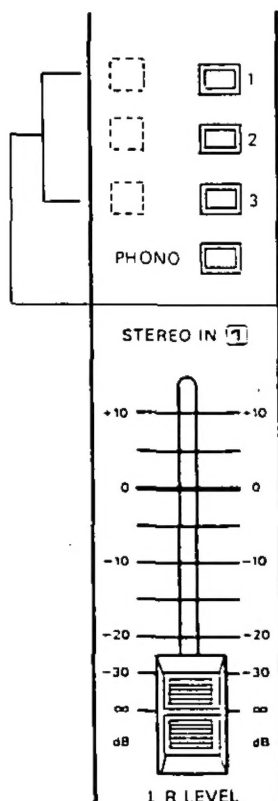
▲ ON  
▲ OFF

### Monaural Input Compressor switch (MONO IN COMP)

When this switch is turned on, the compressor is activated. The compressor prevents the signal sent to the main output section via the Mono Inputs from exceeding a certain preset level. The output signal will therefore not be overdriven and distorted, even during periods of excessive input levels.

**NOTE:** The compression threshold and ratio are adjustable. (See page 18.)

## STEREO INPUT SECTION



Two Stereo Input Sections are available on the WR-M10A. Up to four stereo sources (one turntable and 3 line-level stereo sources) can be connected to each one of the Stereo Input Sections, allowing a total of 2 turntables and 6 line level sources, such as a cassette deck, compact disc player, VHS Hi-Fi, etc.

### Stereo Input Selector Switch (1, 2, 3, Phono)

- Selects which of the four stereo sources connected to each Stereo Input Section is to be sent to the output section.
- One source may be selected from each Stereo Input Section. The faders may then be used for simultaneous fade-in/fade-out of two signals.

This space may be used for labels identifying which signal source is controlled by each of the switches.

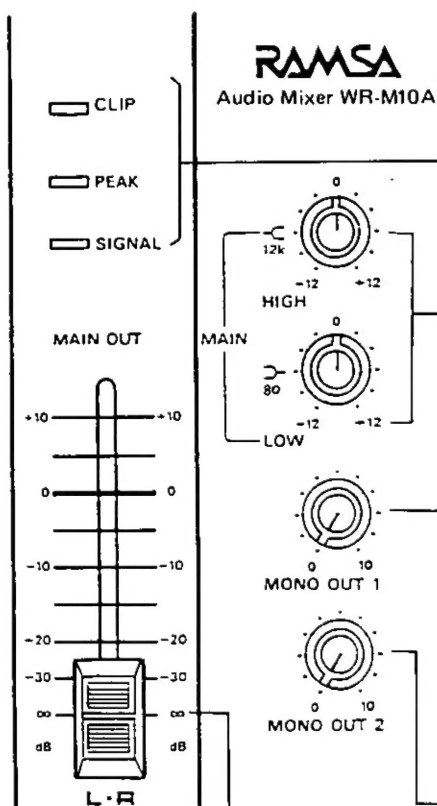
### Stereo Input Fader (STEREO IN 1 2)

- Adjusts the level of the stereo input signal to the main output section. The signals of L and R are adjusted simultaneously.
- The "0" position of this fader corresponds to the rated output. The output levels of the stereo devices connected to the Stereo Input Sections should be adjusted so that optimum output levels can be obtained when the stereo input fader is set at the "0" position.

### Start/Stop Switch

- Each stereo input fader has a built-in microswitch. This allows remote control of start/stop operation of external devices by moving the fader. For further information see page 8.

## MAIN OUTPUT SECTION



### Three-point LED Indicators (CLIP, PEAK, SIGNAL)

These LED's monitor the status of the signal level before the main output fader.

- **CLIP (red):** This LED lights when the signal level sent to the main output section reaches the maximum output level of + 20 dB. Any signal above this level will be distorted. In this case, lower the signal level by adjusting the stereo input faders and/or the Mono Master control.
- **PEAK (orange):** This LED lights when the signal level sent to the main output section reaches + 14 dB. Since this is within 6 dB of clipping level, adjust the stereo input faders and the Mono Master control so that this LED only lights occasionally.
- **SIGNAL (green):** This LED lights when the signal level sent to the main output section reaches - 20 dB. This LED is used to indicate the presence of a signal at the main output section.

### Equalizer (HIGH $\frac{12k}{-12}$ , LOW $\frac{80}{-12}$ )

High and Low two-band equalizer. Both filters are a shelving type.

High:  $\pm 12$  dB at 12 kHz

Low:  $\pm 12$  dB at 80 Hz

### MONO OUT 1 and 2

The WR-M10 has two separate mono outputs. This signal is derived by summing together the left and right main output into one signal. Both Pre-and Post-Main Fader signals are available.

### Mono Output Control 1 (Pre-Fader)

Adjusts the output level of the Pre-Main Fader signal. Adjustment of the Main Output fader will not affect this signal.

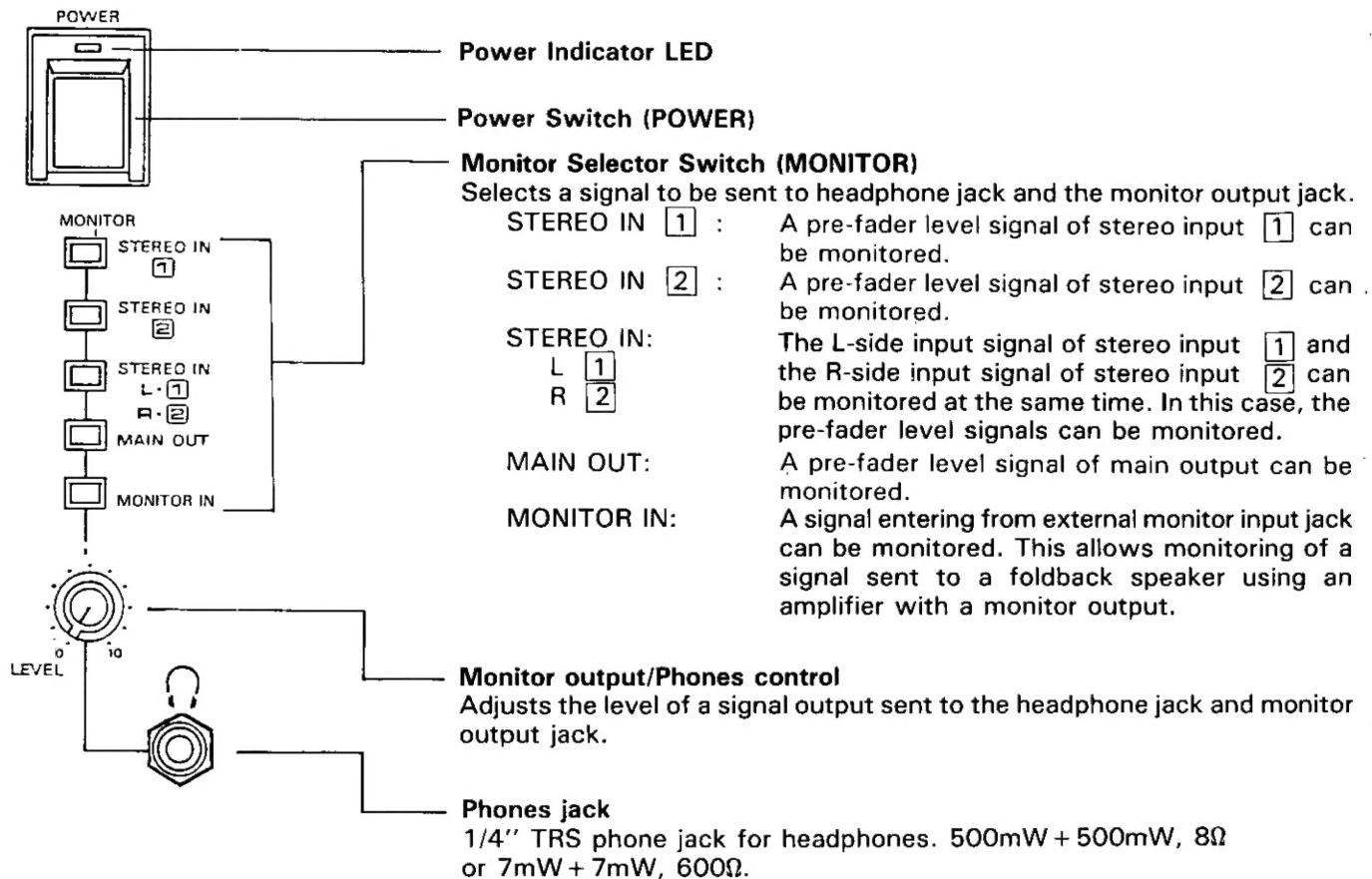
### Mono Output Control 2 (Post-Fader)

Adjusts the output level of the Post-Main Fader signal. Adjustment of the Main Output fader will affect this signal.

### Main Output Fader (MAIN OUT):

Adjusts the main L/R output signal levels. For optimum performance, the rated output should be obtained with this fader in the "0" position. This fader adjusts the Left and Right output signals simultaneously.

## POWER SWITCH/MONITOR SECTION



## LEVEL SETTING POSITIONS OF MONO INPUT LEVEL CONTROL

This control simultaneously sets the gain of the input head amplifier (HA) and adjusts the signal level applied to the scanning buss. (Fig. B). To set signal level of the WR-M10A MONO inputs:

1. Set the level control of each mono input channel according to the level of the signal source being applied. (See Fig. A). For example: when using a microphone with an output level of approximately  $-44$  dB, set the level control to "8".
2. Set the L-R Main Level Fader to "0".
3. Adjust the mono master control for best overall level from the speakers.

After setting these initial levels, fine adjustments may be made to obtain the proper mix.

Level Setting Guide

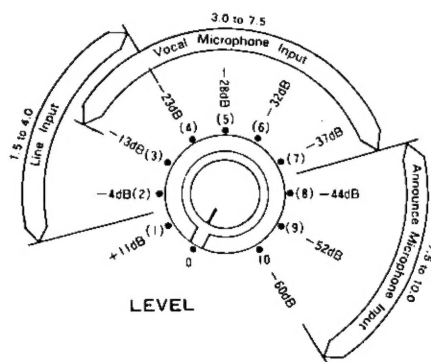


Fig. A

LEVEL DIAGRAM

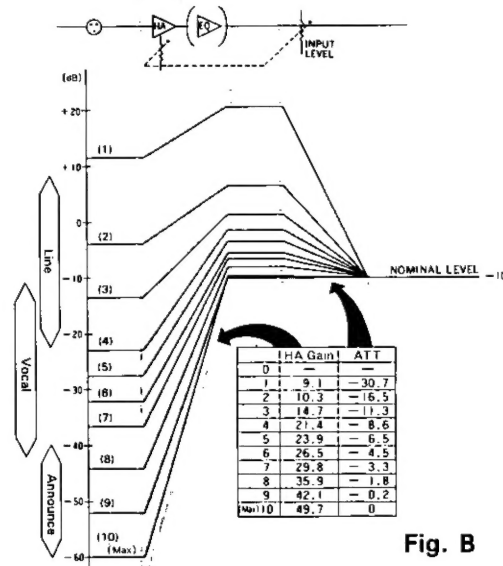
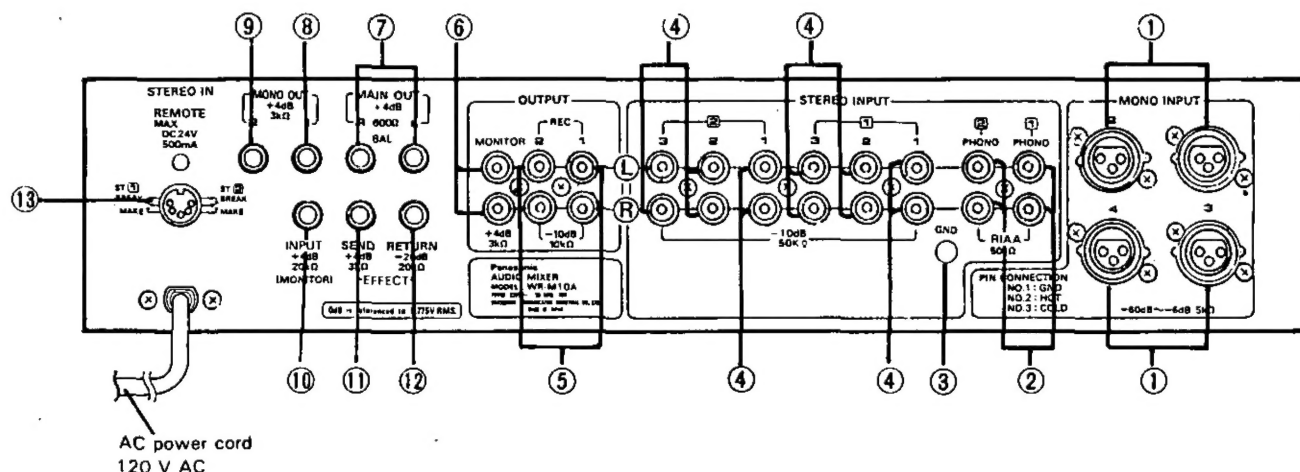


Fig. B

## INPUT/OUTPUT CONNECTORS PANEL

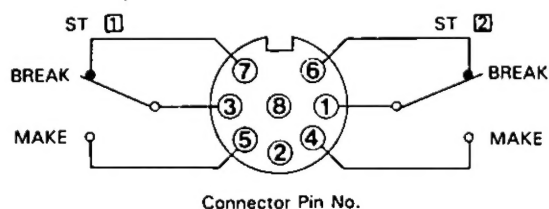


- (1) **Monoaural input Connectors**  
3-pin XLR-type connectors,  $-60\text{ dB}$  to  $-6\text{ dB}$   $5\text{ k}\Omega$ , electronic balanced.  
Pin No.1: Ground, Pin No.2: Hot, Pin No.3: Cold.  
Connections should be made with 3-pin XLR male connectors. When a condenser microphone is used, make sure a battery or a phantom power supply is connected.
- (2) **Phono Input jacks**  
RCA-pin jack,  $-63\text{ dB}$ ,  $50\text{ k}\Omega$ , unbalanced.  
To be connected with the output of a turntable.  
Two turntables may be connected.
- (3) **Ground Terminal**  
Ground terminal for turntable.
- (4) **Stereo Input Jacks**  
RCA-pin jacks,  $-10\text{ dB}$   $50\text{ k}\Omega$  unbalanced. For making connections with line level devices such as cassette deck, compact disc player, etc.
- (5) **Rec Output jacks**  
RCA-pin jacks,  $-10\text{ dB}$   $10\text{ k}\Omega$  unbalanced.  
Main output pre-fader level signals for sending to a tape recorder.
- (6) **Monitor Output Jacks**  
RCA-pin jacks,  $+4\text{ dB}$   $3\text{ k}\Omega$  unbalanced.  
Outputs the signal selected by the Monitor Selector Switches. Used for control room monitoring.
- (7) **Main Output Jacks**  
 $1/4''$  TRS phone jacks,  $+4\text{ dB}$   $600\Omega$  transformer balanced. These jacks may be used to send a stereo signal to the main house mix or to a radio feed. Both jacks are controlled simultaneously by the Main L-R Fader. Use a  $1/4''$  Tip-Ring-Sleeve (TRS) when sending this signal to a balanced device. A  $1/4''$  Tip-Sleeve (TS) plug should be used for an unbalanced device.
- (8) **Mono Output Jack 1**  
 $1/4''$  TRS phone jack,  $+4\text{ dB}$   $3\text{ k}\Omega$  unbalanced.  
This is the output jack for the summed left and right signals which is derived pre-main fader.
- (9) **Mono Output Jack 2**  
 $1/4''$  TS phone jack,  $+4\text{ dB}$   $3\text{ k}\Omega$  unbalanced.  
This is the output jack for the summed left and right signals which is derived post-main fader.
- (10) **Monitor Input Jack**  
 $1/4''$  TS phone jack,  $+4\text{ dB}$   $20\text{ k}\Omega$  unbalanced.  
This jack is connected with an output circuit of an external device in order to monitor its output signal.
- (11) **Send Output Jack**  
 $1/4''$  TS phone jack,  $+4\text{ dB}$   $3\text{ k}\Omega$  unbalanced.  
This jack is for the signal sent by the effect controls on the mono input section. It is for connection to the input of an effects device, such as digital delay, reverb, etc.
- (12) **Return Input Jack**  
 $1/4''$  TS phone jack,  $-20\text{ dB}$   $20\text{ k}\Omega$  unbalanced.  
This is an input jack for receiving the output signal from an effects device.



### (13) Remote Control Connector

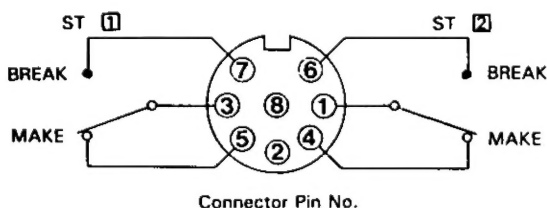
This is an 8-pin DIN connector for two circuits with a control capacity of max. 24V DC, 500 mA. This terminal is internally connected to the microswitch built into both Stereo Input Fader **1** and Stereo Input Fader **2**. Therefore, remote control of external equipment is possible by movement of these faders. Typical application is the start/stop function of turntables or cartmachines.



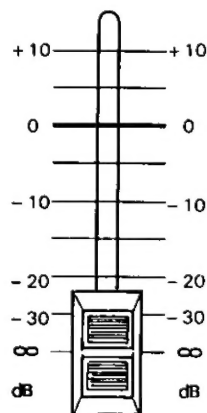
- In the above figure "MAKE" refers to the fader being in the " $\infty$ " position. "BRAKE" refers the fader being raised anywhere above the " $\infty$ " position.
- Pins 3, 5, and 7 are controlled by Stereo Input Fader **1**.
- Pins 1, 4, and 6 are controlled by Stereo Input Fader **2**.
- For details on connection to external equipment, consult the manual for that equipment.

See the following examples.

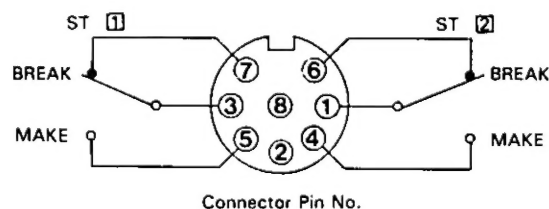
1. Stereo Input Faders **1** and **2** are both at " $\infty$ ".



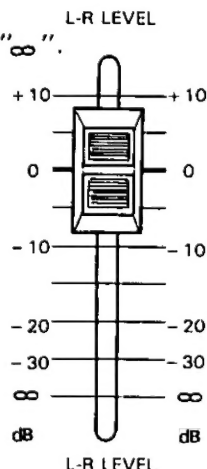
- A. Pins 3 and 5 are shorted together
- B. Pins 1 and 4 are shorted together



2. Stereo Input Faders are at some point above " $\infty$ ".



- A. Pins 3 and 7 are shorted together
- B. Pins 1 and 6 are shorted together

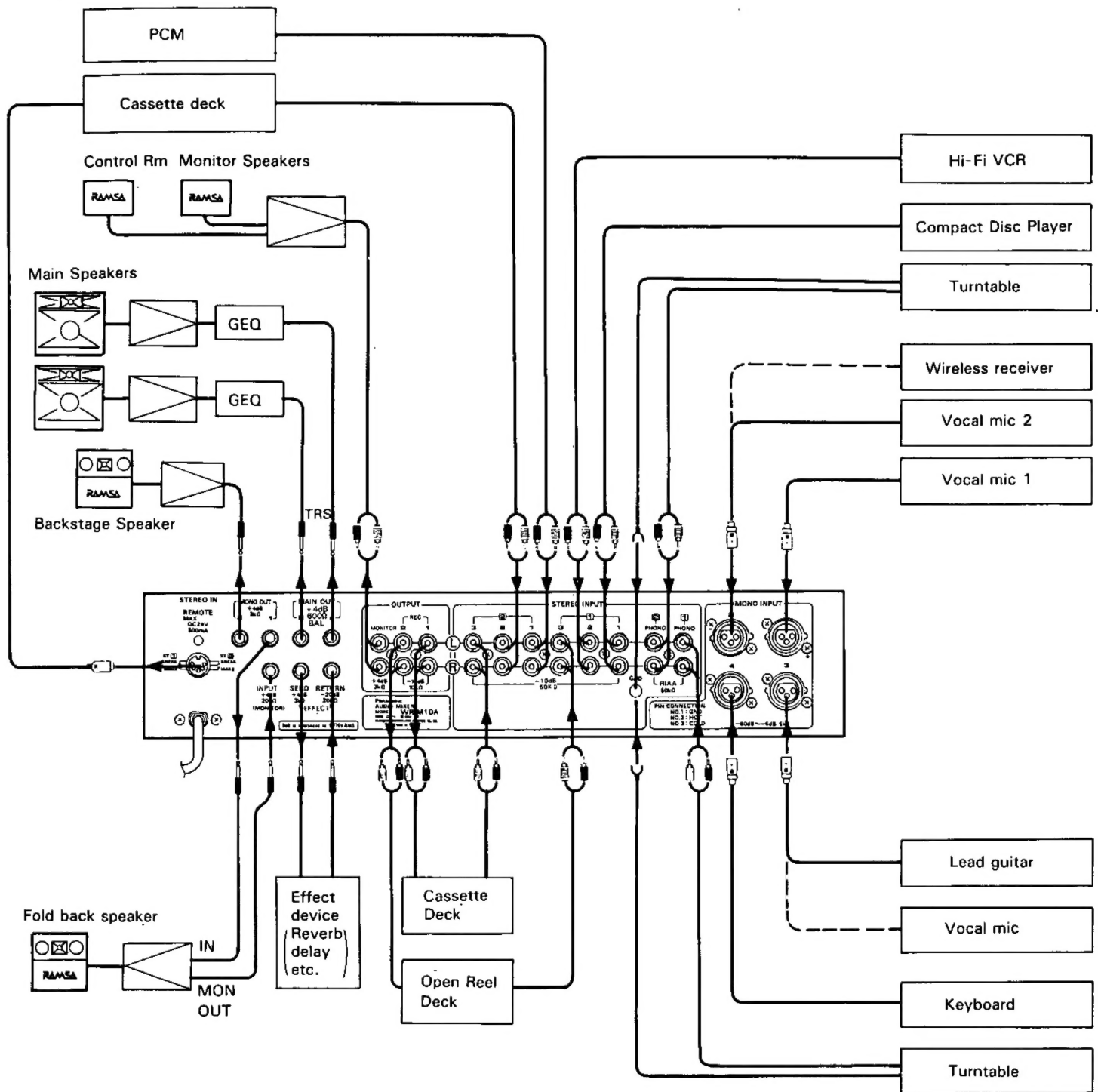


### Notes for Connections

- When a high-impedance microphone is connected, length of the cable should be less than 30 feet. Otherwise, high-frequency range characteristics may be deteriorated.
- When a low-impedance microphone (150 $\Omega$ , 250 $\Omega$ , or 600 $\Omega$ ) is used, up to 165 feet in cable length may be used.
- When a turntable is connected, be sure to connect the earth wire of the turntable to the ground terminal (GND).
- When making a connection between an effect device and this unit, the input/output shielded wires should be laid close to each other. If a wiring loop is formed with the mixer unit, external noise may be picked up easily.
- Do not place speaker cables near the input cables, as oscillation may occur.



# SYSTEM APPLICATION

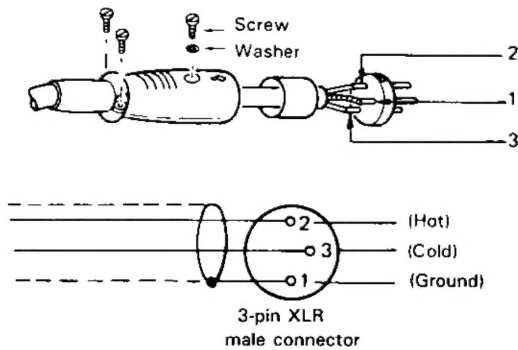


- .....3-pin XLR-type male connector
- .....1/4" Tip-Sleeve (TS) phone plug
- .....RCA pin plug
- .....8-pin DIN connector
- .....1/4" Tip-Ring-Sleeve (TRS) phone plug
- .....power amplifier
- GEQ .....graphic equalizer

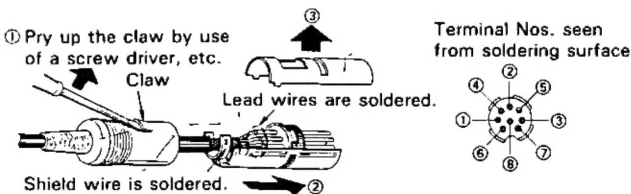
CABLE CONNECTIONS TO INPUT/OUTPUT CONNECTOR

• 3-pin XLR-type connector

Connect 2-conductor shielded cable as shown below.

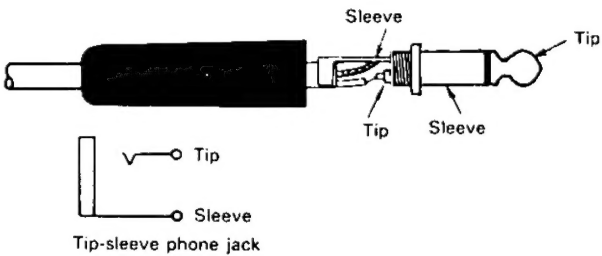


• 8-pin DIN connector



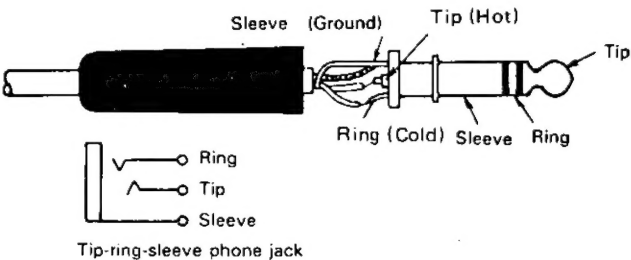
• 1/4" Tip-sleeve phone plug

Connect single-conductor shielded cable as shown below.



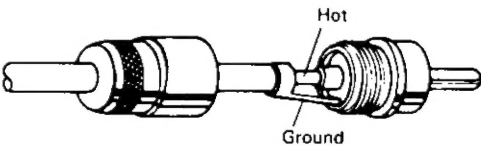
• 1/4" Tip-ring-sleeve phone plug

Connect 2-conductor shielded cables as shown below.



• RCA pin-plug (Input and output)

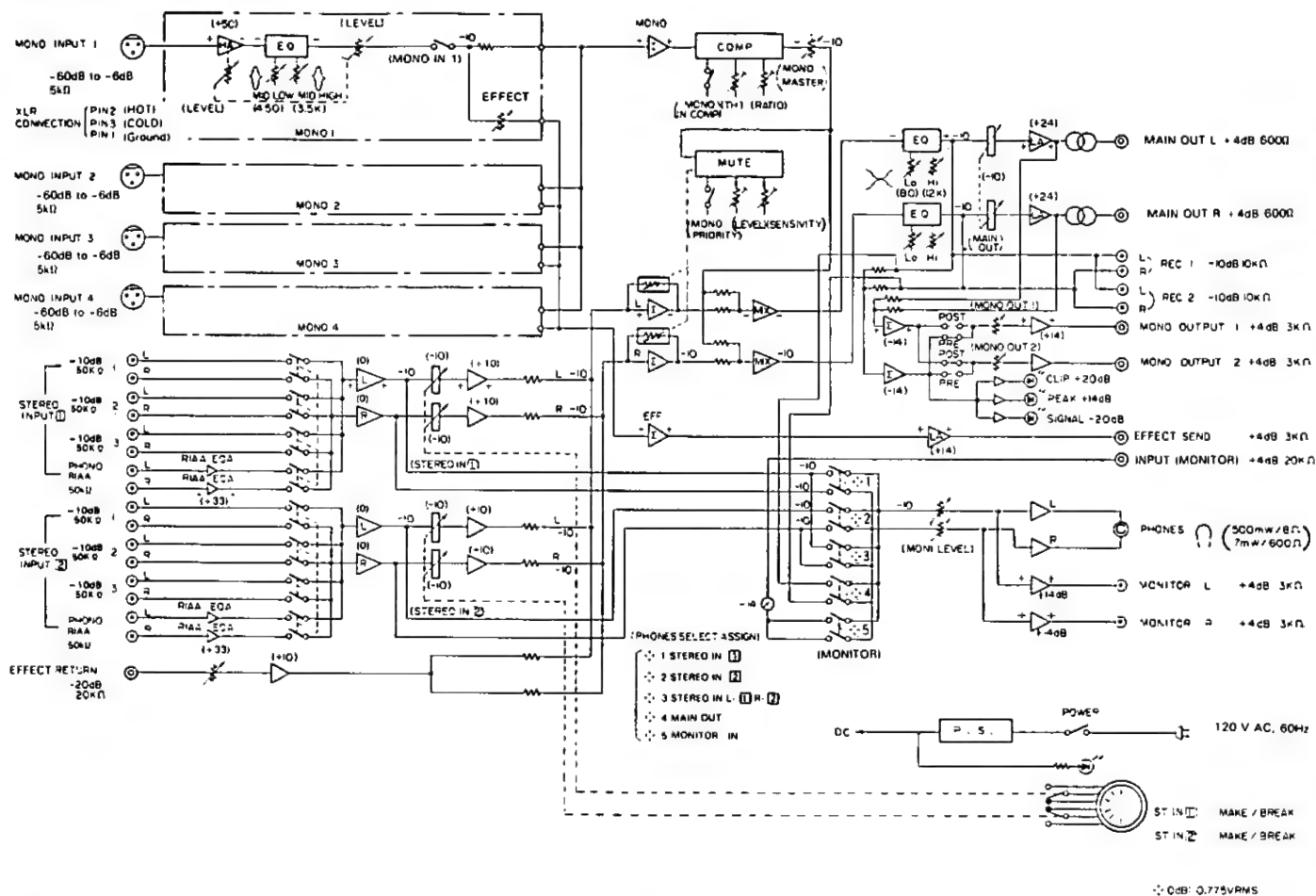
Connect single-conductor shielded cable as shown below.



PLANNING TABLE

INPUTS			OUTPUTS		
<div>Mono</div>			REC OUT 1	L	
INPUT 1				R	
INPUT 2			REC OUT 2	L	
INPUT 3				R	
INPUT 4			MONITOR	L	
<div>Stereo</div>				R	
①	1		MAIN OUT	L	
	2			R	
	3		MONO OUT 1		
	PHONO 1		MONO OUT 2		
②	1		EFFECT SEND		
	2				
	3				
	PHONO 2				
EFFECT RETURN					
MONITOR IN					

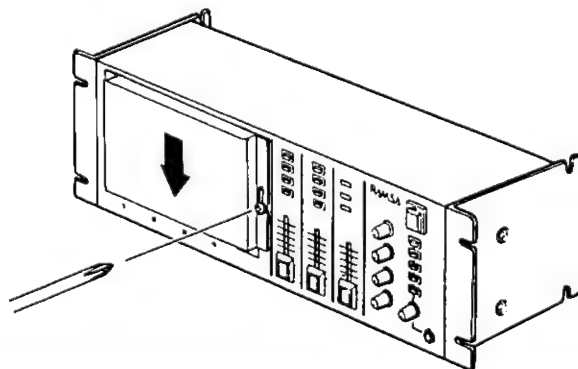
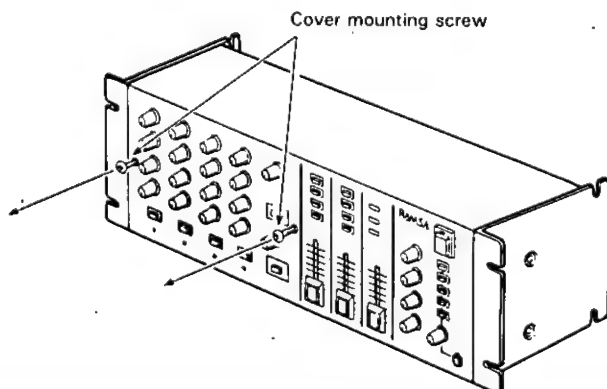
## BLOCK DIAGRAM



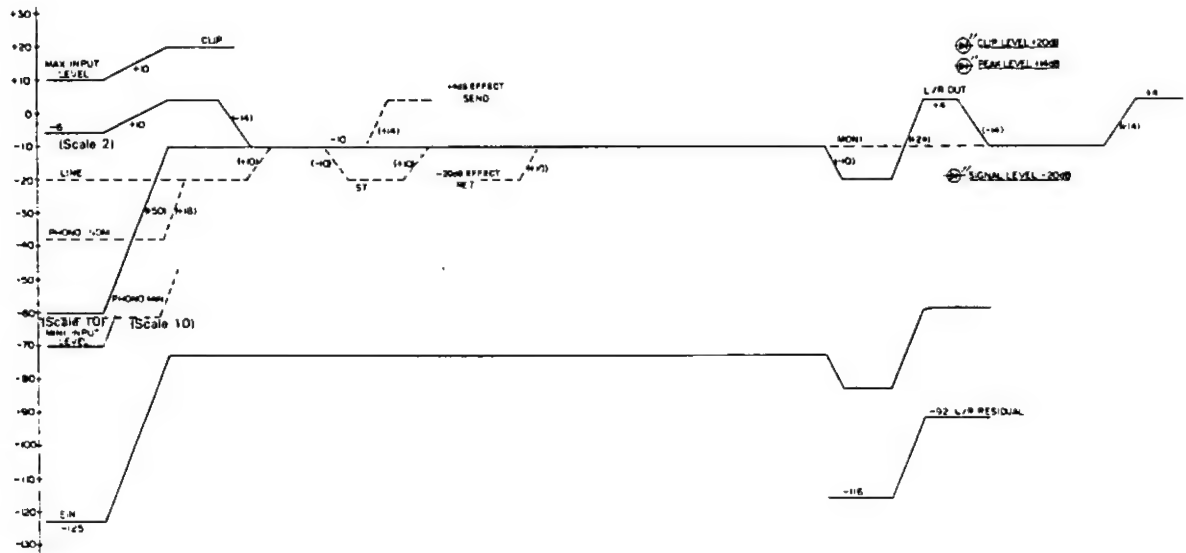
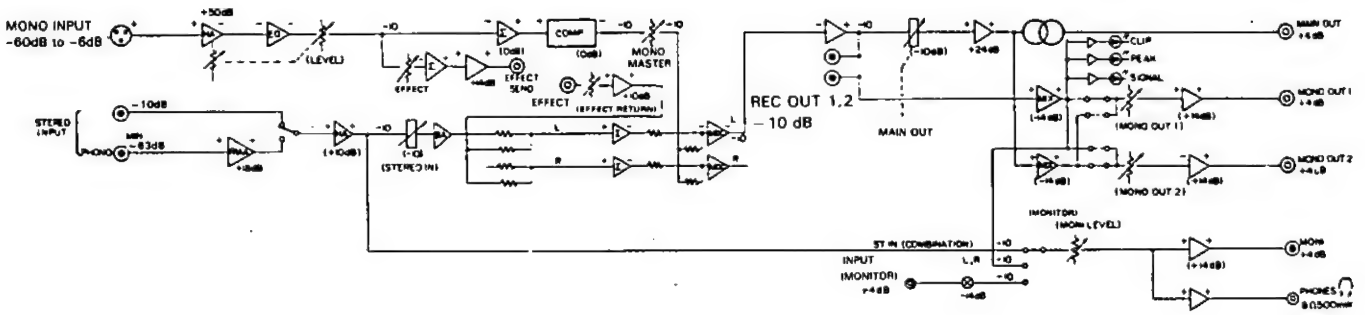
## INSTALLING THE PROTECTIVE COVER

- After completing the adjustments, install the protective cover to prevent the switch and controls from tampering in the following steps:

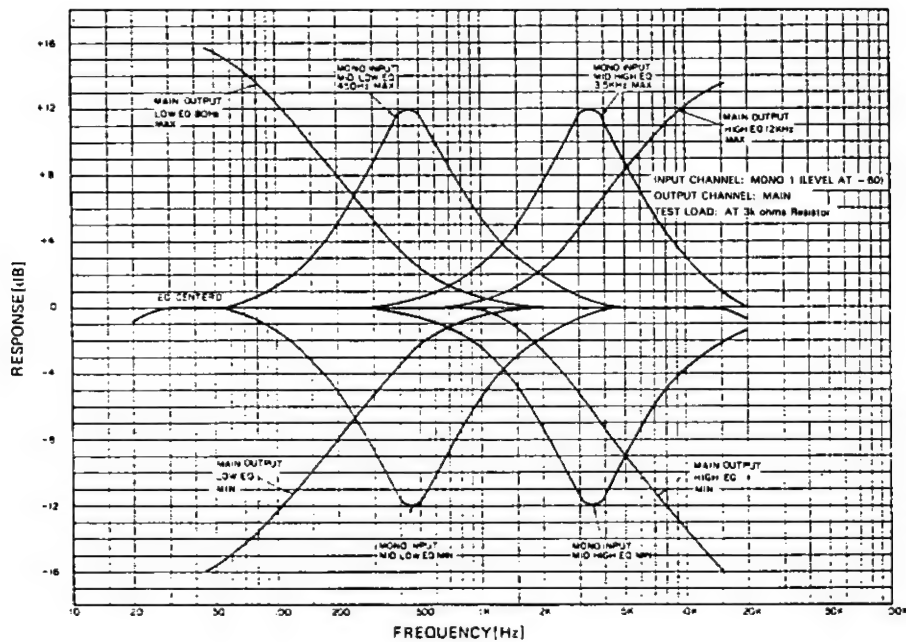
- Fasten the screws using a phillips screwdriver.
- Fit the protective cover hole to the screws, then slide it down in the direction of the arrow.



## LEVEL DIAGRAM



## TYPICAL PERFORMANCE



## SPECIFICATIONS AND ACCESSORIES

### • Specifications

Power supply:	120 V AC, 60Hz		
Power consumption:	Approx. 120V, 0.15A		
Frequency response:	20Hz to 20kHz, +0.5dB, -2dB [without output transformer] (All except MAIN OUT) 30Hz to 20kHz, +0.5dB, -2dB [with output transformer] (MAIN OUT ONLY)		
Total harmonic distortion:	0.1% max. (+18dB output, 30Hz to 20kHz MAIN OUTPUT)		
Intermodulation distortion:	0.1% max. (+18dB output, 30Hz to 20kHz MAIN OUTPUT)		
Equivalent input noise:	-125dB or less (MONO INPUT 150Ω termination, MAIN OUTPUT IHF "A" WTD)		
Residual noise:	-85dB or less. (with all volume controls and faders lowered to minimum)		
Max. output:	+20dB		
Crosstalk:	65dB max. (at 1kHz)		
CMRR:	60dB (at 1kHz)		
Max. gain:	74dB Mono INPUT/34dB STEREO INPUT		
Input circuits:			
Monaural input 1 to 4:	-60 to -6dB (Max. -70 to +10dB) 5 kΩ, Electronically balanced 4 circuits [XLR-type connector]		
Stereo input <table border="1"><tr><td>1</td><td>2</td></tr></table> :	1	2	-10dB, 50kΩ unbalanced stereo input (L/R) 6 circuits (RCA-pin jack)
1	2		
Phono input <table border="1"><tr><td>1</td><td>2</td></tr></table> :	1	2	MIN -63dB, 50kΩ unbalanced, stereo input (L/R) 2 circuits (RCA-pin jack)
1	2		
Monitor input:	+4dB, 20kΩ unbalanced, monaural input 1 circuit (1/4" TS phone jack)		
Effect return input:	-20dB, 20kΩ unbalanced, monaural input 1 circuit (1/4" TS phone jack)		
Output circuits:			
Main output:	+4dB, 600Ω balanced, stereo output (L/R) 1 circuit (1/4" TRS phone jack)		
Monaural 1 output:	+4dB, 3kΩ unbalanced, monaural output 1 circuit (1/4" TRS phone jack)		
Monitor output:	+4dB, 3kΩ unbalanced, stereo output (L/R) 1 circuit (RCA-pin jack)		
Effect send output:	+4dB, 3kΩ unbalanced, monaural output 1 circuit (1/4" TS phone jack)		
Monaural 2 output:	+4dB, 3kΩ unbalanced, monaural output 1 circuit (1/4" TS phone jack)		
Recording output:	-10dB, 10kΩ unbalanced, stereo output (L/R) 2 circuit (RCA-pin jack)		
Headphone:	500mW + 500mW, 8Ω, 7mW + 7mW, 600Ω unbalanced, stereo output (L/R) 1 circuit (1/4" TRS phone jack)		
Monaural input equalizer:	450Hz ± 12dB (MID LOW), 3.5kHz ± 12dB (MID HIGH) peak/dip		
Main output equalizer:	80Hz ± 12dB (LOW), 12kHz ± 12dB (HIGH) shelving		
Monaural input compressor:	Standard sensitivity (summing point) +20 to -10dB (variable) Standard ratio 1.5:1 to 8:1 (variable)		
Mono priority:	Standard sensitivity (summing point) -6 to -36dB (variable) Standard attenuation -6 to -20dB (variable)		
LED indicator:	CLIP: lit at +20dB Red LED		
(Pre-Main Out Fader Level)	PEAK: lit at +14dB Orange LED		
	SIGNAL: lit at -20dB Green LED		
Remote circuit:	Make/break contact (transfer contact), 2 circuits 8-pin DIN connector, Control capacity: DC24V 500mA		
Dimensions:	17-7/16"(W) x 6-15/16"(H) x 6-5/16"(D) [444(W) x 177(H) x 160(D) mm] (Dimensions are with rack mount angles and all panels in position as shipped from factory)		
Weight:	Approx. 13.2 lbs (6 kg)		
Finish:	Operating panel: I/O connector panel: Top blank panel: Rear blank panel: Bottom blank panel: Rack mount angle:		
	Smoked brown (vinylchloride coated steel plate)		
	Black semiglossy (aluminum diecast)		

### • Accessories

Device indication label sheet.....	1
8-pin DIN connector for remote control.....	1
Operating Instructions (including installation) .....	1
Protective cover.....	1

## CAUTION

"These servicing instructions are for use by qualified personnel only. To avoid electric shock do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel."

## INSTALLATION

### ■ Rack Mount Angle Fittings

- (1) Remove the four rack mount angle mounting screws (M4 × 8) on both sides.

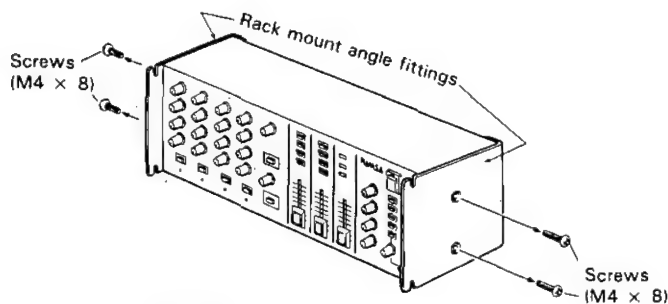


Fig 1.

- (2) Replace the rack mount angle fittings in the appropriate position and replace the mounting screws.

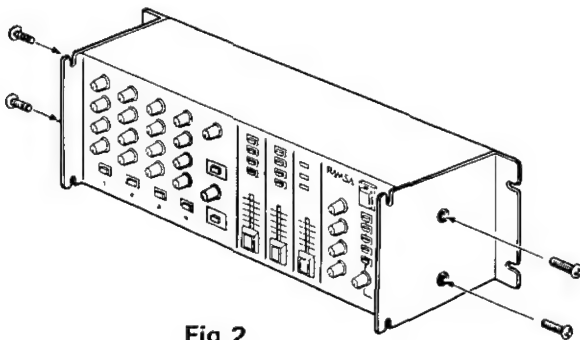


Fig 2.

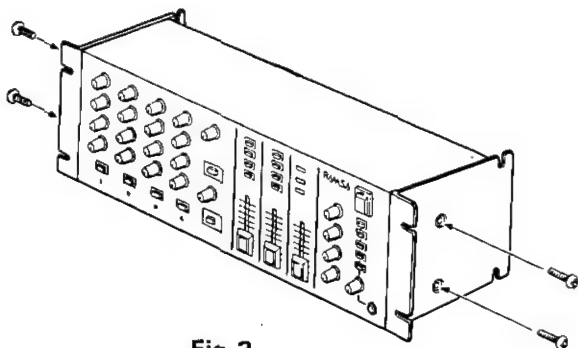


Fig 3.

### ■ Modification of I/O Connector Panel Mounting Positions

- (1) Remove the rack mount angle fittings on both sides.

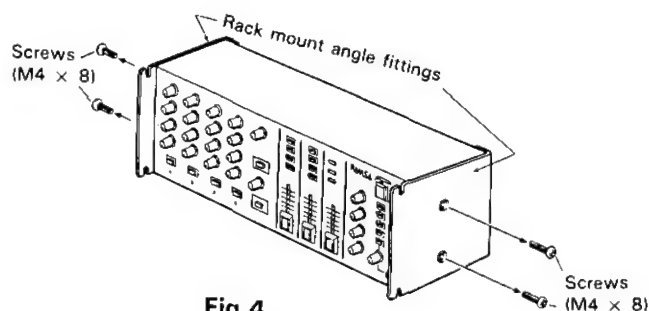


Fig 4.

- (2) When moving the I/O connector panel to the top:

- a) Dismount the I/O connector panel and the top blank panel by removing screws as shown in Fig. 5.

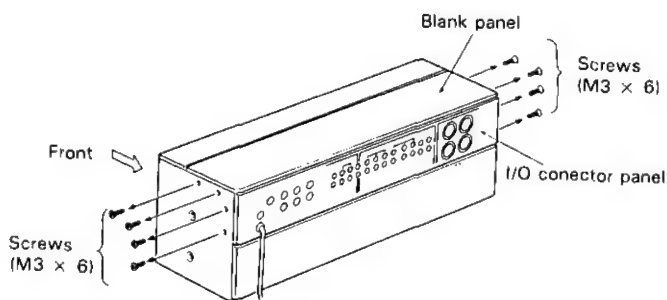


Fig 5.

- b) Exchange the positions of I/O connector panel and top blank panel and mount them.

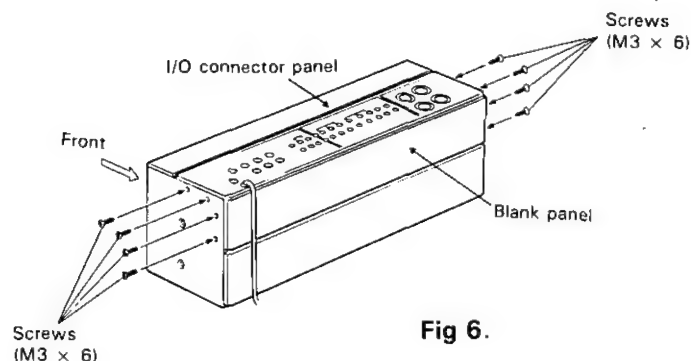


Fig 6.

(3) When moving the I/O connector panel to the bottom:

a) Dismount the I/O connector panel, rear blank panel, and the bottom blank panel.

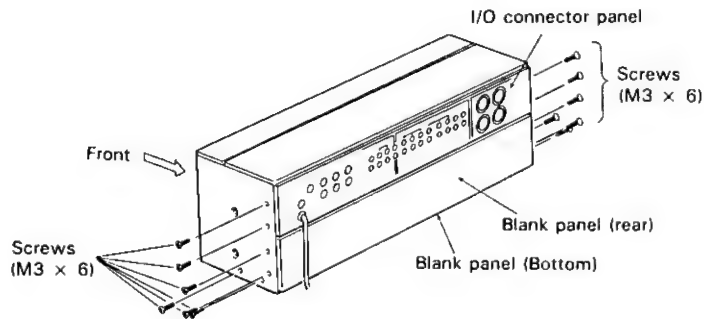


Fig 7.

b) Move the output transformer mounting plate to the upper position. To move the output transformer mounting plate, remove the fixing screw and loosen the track screw shown in Fig. 9. The plate may then be slid along the track into the upper position. Replace the fixing screw in the upper screw hole and retighten the track screw.

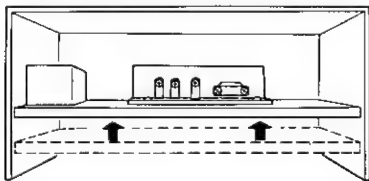


Fig 8.

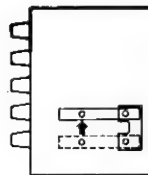


Fig 9.

**NOTE:** When moving the I/O connector panel to the rear or top, the output transformer mounting plate must be moved to the lower position.

c) Mount the I/O connector panel to the bottom. Mount two blank panels on the rear.

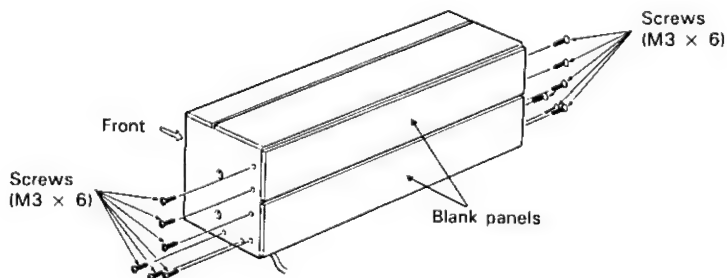


Fig 10.

(4) After completing the modification of I/O connector panel positioning install the rack mount angle fittings.

(■ Use of rack mount angle fittings: See Page 14.)

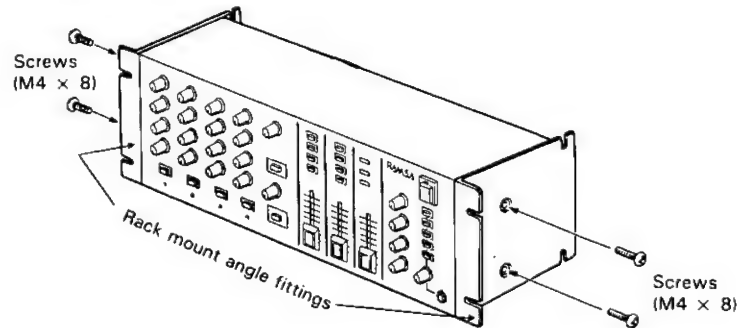


Fig 11.

### ■ Rack Mounting

(1) Change the position of the rack mount angle fittings of this unit as shown on Page 14, Fig. 3.

(2) Install the WR-M10A on the EIA (19") rack.

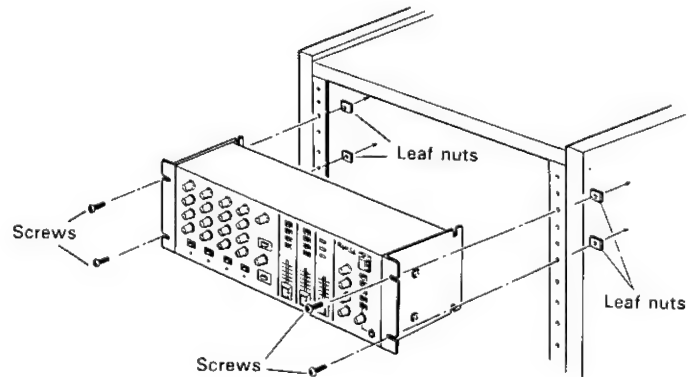


Fig 12.

**CAUTION:** If the WR-M10A is rack-mounted above the power amplifier and power supply units which are also rack-mounted, it may be overheated or adversely influenced by hum in the power system.



### ■ Flush Mounting on the Wall

- (1) A Flush mounting box must be acquired from an outside source. See Fig. 13 for dimensions.
- (2) Change the position of the rack mount angle fittings of this unit. See Fig. 3 on Page 14.

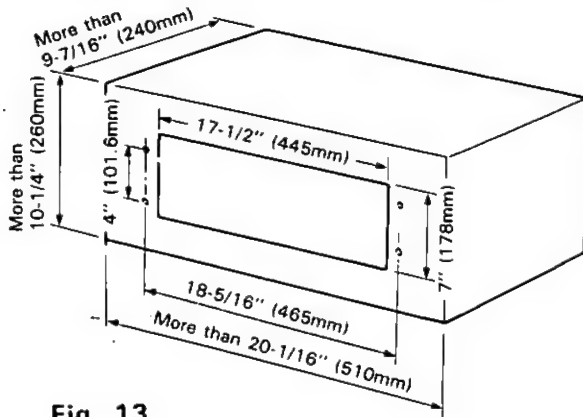


Fig 13.

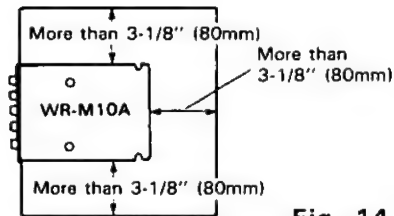


Fig 14.

- (3) Mount the flush mounting box in the wall.

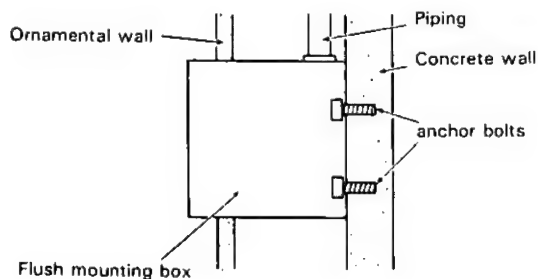


Fig 15.

- (4) Connect the input and output cables to the WR-M10A. Install the WR-M10A in the flush mounting box.

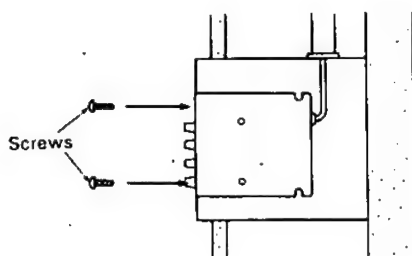


Fig 16.

### ■ Direct Mounting on the Wall

- (1) Change the position of the rack mount angle fittings of this unit. (See Fig. 2 on Page 14.)
- (2) Change the mounting position of the I/O connector panel to the bottom. (See page 15.)
- (3) Mount the unit directly on the wall. Use four wood screws ( $\phi 5 \times 15\text{mm}$  or larger) for fixing.

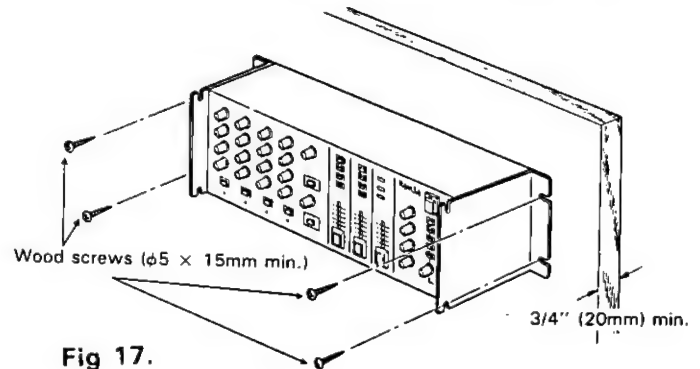


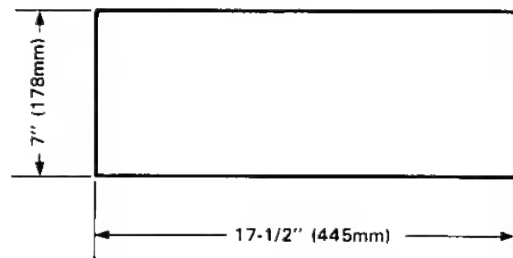
Fig 17.

### CAUTIONS:

- (1) The mounting wall should be a board or beam of more than 20mm in thickness.
- (2) Mounting screws should be wooden screws ( $\phi 5 \times 15\text{mm}$  min.) or wall mounting anchor bolts.
- (3) Do not mount on an ornamental wall, etc. Such mounting is dangerous and therefore prohibited.

### ■ Flush Mounting on the Table

- (1) Cut a hole in the table top of the dimensions shown below.



- (2) Change the mounting position of the I/O connector panel to the top or bottom. (See pages 14 and 15.)
- (3) Install this unit on the table by flush mounting.

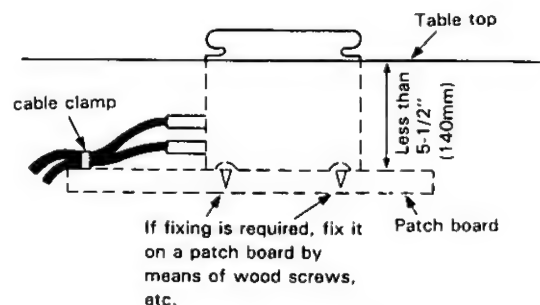


Fig 18.

# COMPRESSOR/MONO PRIORITY EXPLANATION

## ■ Mono Input Compressor

Under normal conditions, as the input signal level to a device increases, there is a proportional increase in the output level of that device. As shown in Fig.1, once the input signal exceeds the level indicated by Point A, distortion results.

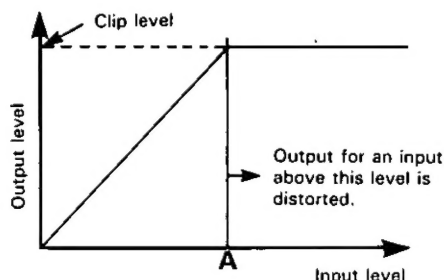


Fig. 1

The WR-M10A is equipped with a built-in compressor. When the compressor is turned on, distortion can be eliminated, even in cases where the signal source has a very wide dynamic range.

To illustrate this point, consider a drum set as a signal source. Signal levels may range from very low, such as lightly tapping a cymbal, to very high, such as beating hard on tom-toms and the bass drum during a drum solo. If the volume level of the mixer is set too low, the drum solo might be at a good level but light tapping will barely be heard. If the volume level is set too high, the light tapping will be heard, but the drum solo will cause distortion. When the compressor is used, all input signal levels will be clearly audible and undistorted.

Two compressor parameters are independently adjustable on the WR-M10A; threshold and ratio.

### • Threshold

The compressor circuit does not have any effect until the signal applied to it reaches a certain preset level. This preset level is called the threshold. Fig.2 illustrates how the threshold is variable so that the compressor can be activated when the mono summing point reaches a level anywhere between -10 and +20 dB. Note how it is now possible to exceed the input level indicated by Point A without any clipping distortion resulting.

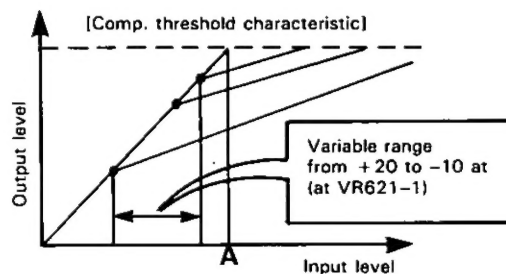


Fig. 2

### • Ratio

The compressor ratio setting determines how much variation in output level will occur once the input signal exceeds the threshold level.

For example, normally an 8 dB increase in the level of an input signal will result in an 8 dB increase in the output level. However, if the input signal has already exceeded the threshold level and the ratio control is set to 8 : 1, then an 8 dB increase in the input signal will result in only a 1 dB increase of the output level. A 16 dB increase at the input will raise the output by 2 dB, and so on. On the other hand, if the ratio is set to 1.5 : 1, then the output increases by 1 dB when the input increases by 1.5 dB; by 2 dB when the input increases by 3 dB, and so on.

The compressor ratio setting is continuously variable between 1.5 : 1 and 8 : 1. A low ratio such as 1.5 : 1 has only a subtle effect on the output signal. A higher ratio, such as 8 : 1, will greatly decrease the dynamic range of the output signal, which is desirable in some applications. Fig.3 illustrates how the output signal can be limited to a certain level by adjustment of the ratio control.

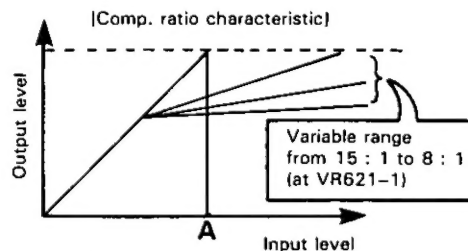


Fig. 3

## ■ Mono Priority

If input signals are present at both the mono and stereo inputs, the mono signal can be given priority over the stereo signal. This is accomplished, by automatically attenuating the stereo signal as soon as a signal appears at one of the mono inputs. This is useful, for example, if an announcement is made while music is playing. The music level will drop as soon as the announcer begins to speak.

Two adjustments are available for the mono priority circuit; Sensitivity (SENS) and Level.

### • Sensitivity (SENS)

This control determines the mono signal level at which the priority circuit takes effect. By adjustment of this control, priority can take effect when the signal level coming from the mono input circuitry is anywhere between  $-36$  dB and  $-6$  dB.

### • Level

This control adjusts the amount of attenuation to the stereo input signal. By adjustment of this control, the amount of attenuation can be set to anywhere from  $-6$  dB to  $-20$  dB.

## COMPRESSOR/MONO PRIORITY ADJUSTMENTS

### ■ Compressor

#### • Threshold

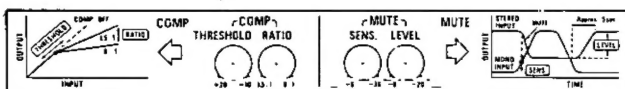
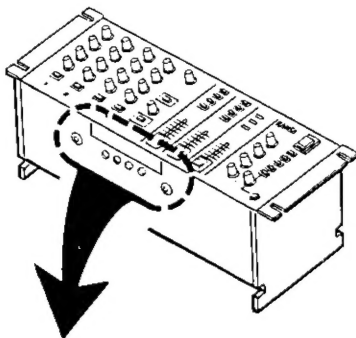
1. Turn the mono input compressor switch on.
2. Connect a microphone or whichever type mono source is being used to the mono inputs.
3. Set the threshold to the point at which no distortion is heard at the output even when the signal being applied is at its loudest point, or when the level controls are at the highest level that will be used in a particular application. Turning the threshold control clockwise causes the compressor circuit to activate at a lower signal level.

#### • Ratio

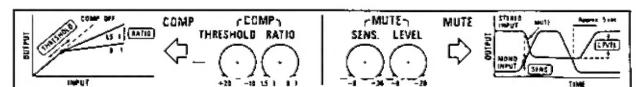
1. Turn the compressor switch on and set the threshold level.
2. Set the ratio control to the point at which the output signal is able to attain sufficient level without distortion. Turning the ratio control clockwise results in the compression ratio becoming higher. This causes a decrease in dynamic range, which means there will be less distinction between loud and soft sounds. Therefore, set the control to achieve the best results for your application.

#### NOTE:

The effect of the threshold and ratio controls may interact. Therefore, it may be necessary to adjust the two repeatedly to achieve optimum results.



THRESHOLD control → ⊕ ○ ○ ○

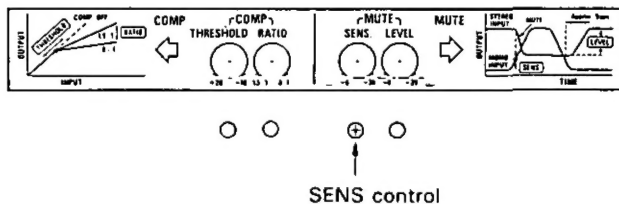


○ ⊕ ○ ○  
↑  
RATIO control

## ■ Mono Priority

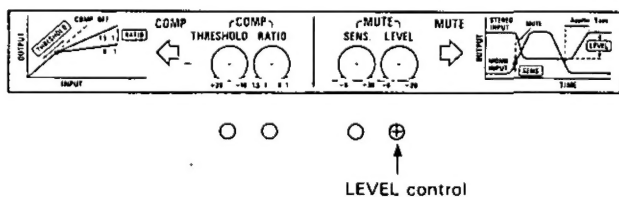
### • SENS

1. Apply a signal such as music, etc. to a stereo input.
2. Turn the Mono Priority switch on.
3. Connect a microphone or whichever type source is being used to the Mono Input.
4. Speak into the microphone or set the source level so as to achieve the input level at which you want the stereo signal to attenuate.
5. While performing step 4, turn the SENS Control to the level at which stereo signal attenuation occurs. Turning the control clockwise will cause the priority circuit to activate at a lower input signal level.



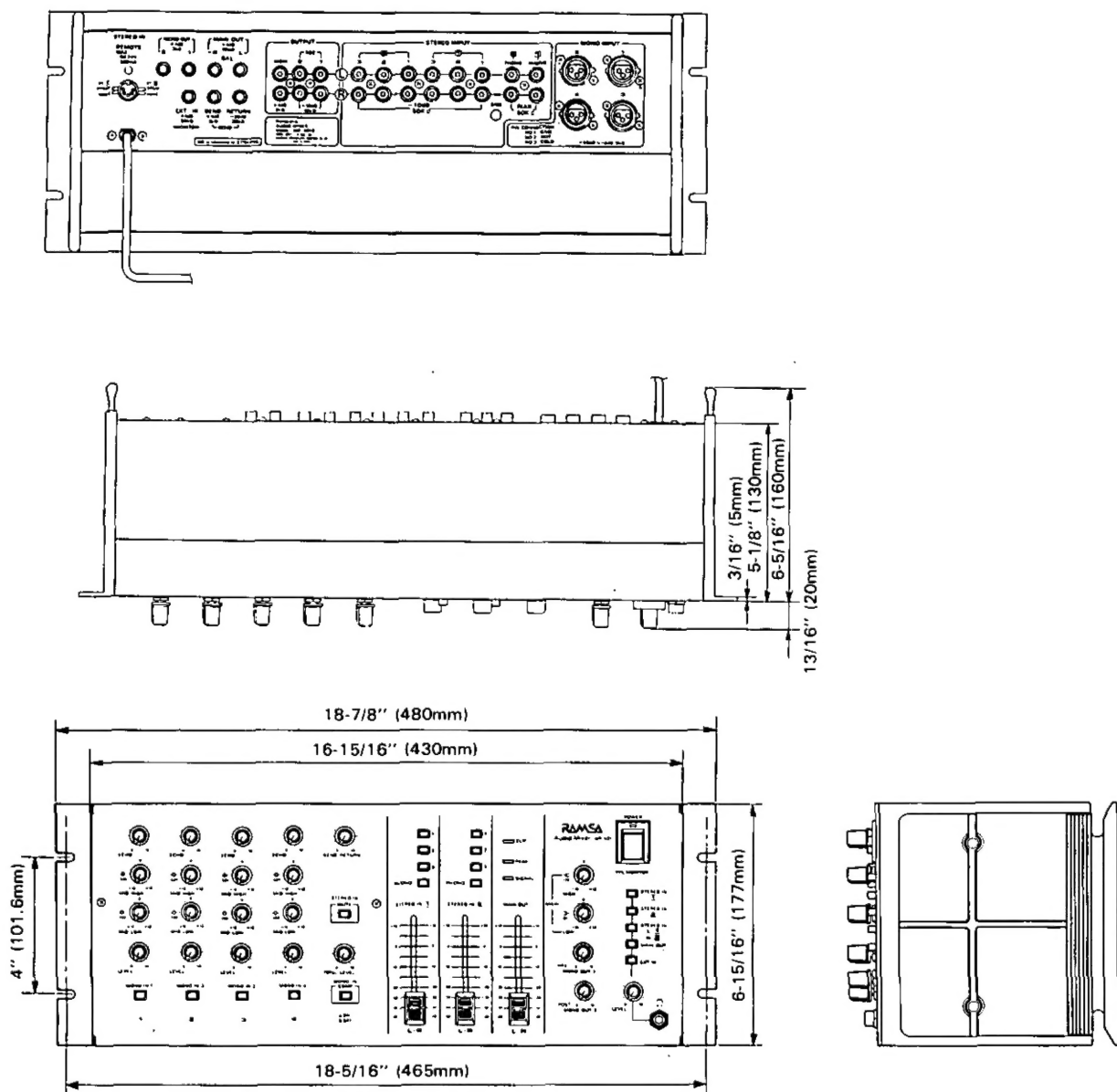
### • LEVEL

1. Activate the Mono Priority circuit as described in the SENS Adjustment section.
  2. Adjust the level control so that the stereo signal becomes sufficiently attenuated to suit the application.
- Turning the control clockwise results in greater attenuation of the stereo signal.



## APPEARANCE

- \* The drawings below provide the dimensions for rack mounting.



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